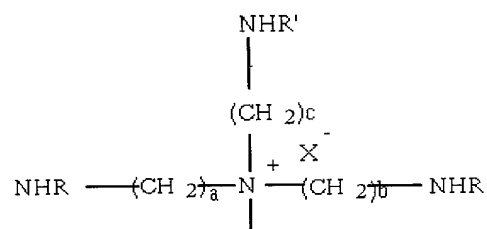


We claim:

1. (Amended) A method of making a complex for delivery to a cell, comprising: covalently forming a polymer, from monomers, in the presence of a polyion, the polymer is formed outside of any cell, resulting in a polymer - polyion complex for delivery to a cell, wherein the polyion is not removed from the complex prior to administration.
2. The method of claim 1 wherein the polyion is a polyanion.
3. The method of claim 2 wherein a complex is formed comprising the polyanion and an amphipathic compound.
4. The method of claim 2 wherein a complex is formed comprising the polyion and a cationic compound.
5. The method of claim 9 wherein the cationic compound is selected from the group consisting of histone, polylysine and protamine.
6. A monomer for forming a polymer having the general structure comprising:



wherein:

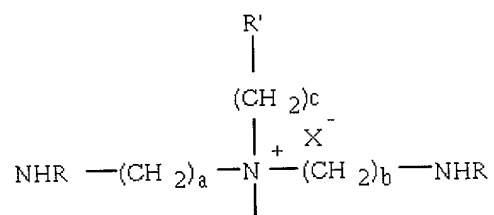
R is selected from the group consisting of an orthogonal protecting group and hydrogen;

R' is selected from the group consisting of an orthogonal protecting group, targeting group, reporter molecule and hydrogen;

a is selected from the group consisting of 1, 2, 3, and 4;

b is selected from the group consisting of 1, 2, 3, and 4;
 c is selected from the group consisting of 1, 2, 3, and 4;
 X⁻ is a monovalent ion.

7. A monomer for forming a polymer having the general structure comprising:



wherein

R is selected from the group consisting of a protecting group and hydrogen;

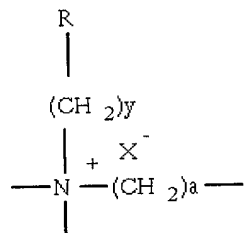
R' is selected from the group consisting of vinyl, acrylate, methacrylate, acrylamide, methacrylamide, and a targeting group;

a is selected from the group consisting of 1, 2, 3, and 4;

b is selected from the group consisting of 1, 2, 3, and 4;
 c is selected from the group consisting of 4 to 24;

X⁻ is a monovalent ion.

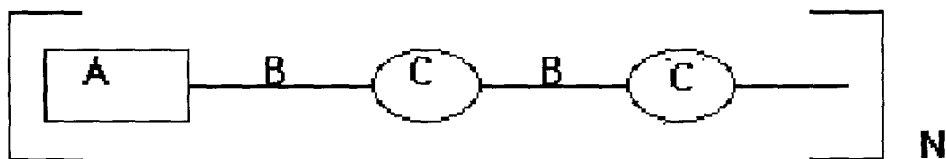
8. A monomer for forming a polymer having the general structure comprising:



wherein

R is selected from the group consisting of vinyl, acrylate, methacrylate, acrylamide, or methacrylamide;
 a is selected from the group consisting of 1,2,3 and 4;
 y is selected from the group consisting of 4 to 24;
 X- is a monovalent ion.

9. A polymer containing a repeating unit comprising:



wherein

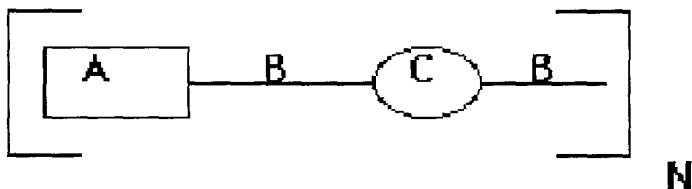
A is a nucleic acid-binding monomer including positively charged organic monomers;

B is a linker selected from the group consisting of aliphatic, cycloaliphatic and aromatic compounds;

C is a chemical bond selected from the group consisting of amide, amidine, disulfide, ether, ester, isothiurea, isourea, sulfonamide, carbamate, carbon-nitrogen double bond, carbon-nitrogen single bond and carbon-nitrogen single bond;

N is greater than or equal to 2.

10. A nucleic acid binding polymer comprising:



wherein

A is a nucleic acid-binding monomer that includes positively charged organic monomers;

B is a linker selected from the group consisting of aliphatic cycloaliphatic, and aromatic compounds;

C is a chemical bond selected from the group consisting of amide, amidine, disulfide, ether, ester, isothiurea, isourea, sulfonamide, carbamate, carbon-nitrogen double bond, carbon-nitrogen single bond, carbon-nitrogen single bond;

N is greater than or equal to 2.